APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,936	04/19/2001	Dmitri Loguinov	010209	8317

24737	7590	08/08/2005

PHILIPS INTELLECTUAL PROPERTY & STANDARDS
P.O. BOX 3001
BRIARCLIFF MANOR, NY 10510

EXAMINER
PHAN, TAM T

ART UNIT	PAPER NUMBER
2144	

DATE MAILED: 08/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/837,936	LOGUINOV ET AL.
	Examiner	Art Unit
	Tam (Jenny) Phan	2144

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>30 June 2005</u>.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10 and 12-27* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10 and 12-27* is/are rejected.

7)☒ Claim(s) *1, 12, 13, 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

U.S. Patent and Trademark Office

PTOL-326 (Rev. 1-04)   Office Action Summary   Part of Paper No./Mail Date 20050720

DETAILED ACTION

1.   A request for continued examination under 37 CFR 1.114, including the fee set

forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this

application is eligible for continued examination under 37 CFR 1.114, and the fee set

forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action

has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on

06/30/2005 has been entered. Claims 1-3, 5, 10, 23-26 are currently amended. Claim

27 is newly added.

2.   Claims 1-10 and 12-27 are presented for examination.

Priority

3.   No priority claims have been made.

4.   The effective filing date for the subject matter defined in the pending claims in

this application is 04/19/2001.

Drawings

5.   This application has been filed with informal drawings, which are acceptable for

examination purposes only. Formal drawings will be required when the application is

allowed.

Claim Objections

6.   Claim 1 is objected to because of the following informalities: "bandwidth samples

are computed based on a difference between an inter-packet spacing between the first

and the last packet" should read "bandwidth samples are computed based on a

~~difference between~~ an inter-packet spacing between the first and the last packet".

"filtering from said set of bandwidth samples based on at least one characteristic of said

received bursts selected ones of said bandwidth samples" should read "filtering from said set of bandwidth samples, based on at least one characteristic of said received bursts, selected ones of said bandwidth samples".

7.   Claim 12 is objected to because of the following informalities: "bottleneck bandwidth being a difference between an inter-packet spacing between the first and the last packet" should read "bottleneck bandwidth being a difference between an inter-packet spacing between the first and the last packet ".

8.   Claim 13 is objected to because of the following informalities: "divided by a difference between an inter-packet spacing duration between the first and the last packet" should read "divided by a difference between an inter-packet spacing duration between the first and the last packet ".

9.   Claim 23 is objected to because of the following informalities: "bandwidth samples are computed based on a difference between an inter-packet spacing between the first and the last packet" should read "bandwidth samples are computed based on a difference between an inter-packet spacing between the first and the last packet".

10.   Appropriate correction is required.

Claim Rejections - 35 USC § 112

11.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

12.   Claims 1-10 and 12-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

13.   Claim 1 recites the limitation "the first packet", "the last packet" in line 8 and "said

unfiltered computed bandwidth samples" in line 12. There is insufficient antecedent

basis for this limitation in the claim. For examining purposes, "the first packet" will read

"a first packet", "the last packet" will read "a last packet, and "said unfiltered computed

bandwidth samples" will read "said filtered computed bandwidth samples".

14.   claims 2-10 are depended upon a rejected claim and thus, are also rejected.

15.   Claim 12 recites the limitation "the first packet" and "the last packet" in line 7.

There is insufficient antecedent basis for this limitation in the claim. For examining

purposes, "the first packet" will read "a first packet" and "the last packet" will read "a last

packet.

16.   claims 13-22 are depended upon a rejected claim and thus, are also rejected.

Claim Rejections - 35 USC § 103

17.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

18.   Claims 1-2, 5-6, 9-10, 12-15, 18, 21-24, and 27 are rejected under 35

U.S.C. 103(a) as being unpatentable over Sisalem et al. (XP-002226884. "The Loss-

Delay Based Adjustment Algorithm: A TCP-Friendly Adaptation Scheme" 1998),

hereinafter referred to as Sisalem, in view of Derby et al. (U.S. Patent Number

5,359,593), hereinafter referred to as Derby.

19.   Regarding claim 1, Sisalem disclosed a method for estimating a bottleneck bandwidth used to support estimation of the bottleneck bandwidth between a server and a client in a communication system, the method comprising the steps of: receiving at said client a plurality of bursts comprised of packets transmitted from said server via a bottleneck link of said system; computing a set of bandwidth samples from each of said bursts received by said client; and determining a new bottleneck bandwidth from said computed bandwidth samples, for transmission of subsequent data packets from said server to said client (Abstract, page 2 paragraph 5, page 3 paragraph 3, page 5 section 3 paragraph 1, page 6).

20.   Sisalem taught the invention substantially as claimed. However, Sisalem did not expressly teach steps of receiving at a client a plurality of bursts comprised of at least 3 packets; computing a set of bandwidth samples based on an inter-packet spacing between the first and the last packet within each of said bursts; filtering from said set of bandwidth samples, based on at least one characteristic of said received bursts, selected ones of said bandwidth samples; and determining a new bottleneck bandwidth from said filtered computed bandwidth samples.

21.   Sisalem suggested exploration of art and/or provided a reason to modify the method for estimating a bottleneck bandwidth with additional features such as the at least 3 packets burst, the filtering step, and the bandwidth sample computation between the first and the last packet within each burst (section 3.1 paragraphs 1-2, page 6 paragraphs 2-3, page 8 paragraph 4).

22.   Derby disclosed a dynamic bandwidth estimation method for packet communications networks having steps of receiving at a client a plurality of bursts

comprised of a series of large data packets [at least 3 packets] transmitted from said

server via bottleneck link of the communication networks (Figure 7, column 18 lines 21-

24, column 19 lines 40-44); computing a set of bandwidth samples based on an inter-

packet spacing between the first and the last packet within each of said bursts (Title,

column 2 lines 38-52, column 7 line 67-column 8 line 11); filtering from said set of

bandwidth samples, based on at least one characteristic of said received bursts,

selected ones of said bandwidth samples (column 2 lines 38-52, column 6 lines 58-67,

column 18 lines 50-53); and determining a new bottleneck bandwidth from said filtered

computed bandwidth samples (Figure 4, column 2 lines 38-52).

23.   It would have been obvious to one of ordinary skill in the art at the time of the

invention was made to modify the method of Sisalem with the teachings of Derby to

include the plurality packets for each burst, burst length bandwidth sample computation,

filtering sample, and determine new bandwidth from the filtered computer samples in

order to enhance QOS control scheme (Sisalem, Abstract) since in large multicast

groups in a heterogeneous environment, a "race to the bottom" can occur so that one

poorly connected receiver determines the quality for the much larger number of well-

connected receivers (Sisalem, page 3 paragraph 1) and the computed burst length

samples are filtered to insure that he filtered values are statistically reliable (Derby,

column 2 lines 38-41).

24.   Regarding claim 2, Sisalem disclosed a method, wherein the step of filtering

comprises the step of rejecting bandwidth samples having a sample lifetime greater

than a threshold bandwidth lifetime (page 6 paragraphs 3-4).

25.   Regarding claims 5 and 18, Sisalem disclosed a method, wherein the step of filtering comprises the step of rejecting bandwidth samples having a retransmitted packet (page 6 paragraphs 4-5).

26.   Regarding claim 6, Sisalem disclosed a method wherein the plurality of said packet bursts is transmitted at a maximum speed by said server system so that the inter-packet spacing is introduced in each of said bursts (page 9 section 4.1 paragraph 1).

27.   Regarding claims 9 and 21, Sisalem disclosed a method wherein said new bandwidth corresponds to a minimum bandwidth of said computed bandwidth samples if a multi-channel link is deployed between said server and said client (page 8 paragraph 2-4).

28.   Regarding claims 10 and 22, Sisalem disclosed a method, wherein the step of filtering comprises the step of eliminating bandwidth samples having a missing packet within each of said bursts (page 6 paragraphs 4-5).

29.   Regarding claim 12, Sisalem and Derby combined disclose a method for estimating a bottleneck bandwidth used to support congestion control between a server and a client, the method comprising the steps of: transmitting by said server through a bottleneck link a plurality of burst comprised of at least 3 packets to said client at a maximum rate; computing by said client a set of bandwidth samples for each of said burst packet, said bottleneck bandwidth being a difference between an inter-packet spacing between the first and the last packet within each of said bursts; filtering said computed bandwidth samples according to predetermined criteria; and determining a new bottleneck bandwidth for the following transmission of data packets between said

server and said client, wherein determination of said new bottleneck bandwidth is based

on said computed bandwidth samples and said and said filtering step (Sisalem,

Abstract, page 2 paragraph 5, page 3 paragraph 3, page 5 section 3 paragraph 1, page

6; Derby, Title, Figure 7, column 2 lines 38-52, column 6 lines 58-67, column 7 line 67-

column 8 line 11, column 18 lines 21-24, column 19 lines 40-44).

30.   Regarding claim 13, Sisalem and Derby disclosed a method wherein the step of

computing said bandwidth samples comprises the steps of: determining the start time

and the end time of the reception of the first and the last packet within each of said

bursts; determining the packet size of the second packet and the last packet for each of

said bursts; and, computing said bandwidth samples based on a difference between the

packet size of the second packet and the last packet, divided by a difference between

an inter-packet spacing duration between the first and the last packet within each of

said bursts (Sisalem, page 6 paragraphs 2-4; Derby, Figure 4, column 2 lines 38-52,

column 7 line 67-column 8 line 11).

31.   Regarding claim 14, Sisalem disclosed a method wherein the plurality of said

packet bursts is transmitted at a maximum rate by said server system so that the inter-

packet spacing is introduced in each of said bursts (page 9 section 4.1 paragraph 1).

32.   Regarding claim 15, Sisalem disclosed a method wherein the step of filtering said

computed bandwidth samples comprises the step of rejecting bandwidth samples

having a sample life time greater than a threshold bandwidth lifetime [Only packets with

sequence number > SEQ are used for bandwidth calculation] (page 6 paragraphs 3-4).

33.   Regarding claims 23-24, the device for estimating a bottleneck bandwidth

corresponds directly to the method of claims 1-2, and thus these claims are rejected

using the same rationale.

34.   Regarding claim 27, Derby disclosed a device wherein said means for filtering

criterion comprises: a missing packet (column 7 line 67-column 8 line 11, column 20

lines 8-18).

35.   Since all the limitations of the claimed invention were disclosed by the

combination of Sisalem and Derby, claims 1-2, 5-6, 9-10, 12-15, 18, 21-24, and 27 are

rejected.

36.   Claims 3-4, 7-8, 16-17, 19-20, and 25-26 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Sisalem et al. (XP-002226884. "The Loss-Delay Based

Adjustment Algorithm: A TCP-Friendly Adaptation Scheme" 1998), hereinafter referred

to as Sisalem, in view of Derby et al. (U.S. Patent Number 5,359,593), hereinafter

referred to as Derby, further in view of Berthaud et al. (U.S. Patent Number 5,815,492),

hereinafter referred to as Berthaud.

37.   Regarding claims 3 and 16, Sisalem disclosed a method for estimating a

bottleneck bandwidth used to support estimation of the bottleneck bandwidth between a

server and a client in a communication system, the method comprising the steps of:

receiving at said client a plurality of bursts comprised of packets transmitted from said

server via a bottleneck link of said system; computing a set of bandwidth samples from

each of said bursts received by said client; and determining a new bottleneck bandwidth

from said computed bandwidth samples, for transmission of subsequent data packets

from said server to said client (Abstract, page 2 paragraph 5, page 3 paragraph 3, page

5 section 3 paragraph 1, page 6).

38.   Derby disclosed a dynamic bandwidth estimation method for packet

communications networks having steps of receiving at a client a plurality of bursts

comprised of a series of large data packets [at least 3 packets] transmitted from said

server via bottleneck link of the communication networks (Figure 7, column 18 lines 21-

24, column 19 lines 40-44); computing a set of bandwidth samples based on an inter-

packet spacing between the first and the last packet within each of said bursts (Title,

column 2 lines 38-52, column 7 line 67-column 8 line 11); filtering from said set of

bandwidth samples, based on at least one characteristic of said received bursts,

selected ones of said bandwidth samples (column 2 lines 38-52, column 6 lines 58-67,

column 18 lines 50-53); and determining a new bottleneck bandwidth from said filtered

computed bandwidth samples (Figure 4, column 2 lines 38-52). .

39.   Sisalem further disclosed a method further comprising the step of filtering for

inaccurate bandwidth samples from said computed bandwidth samples by rejecting

bandwidth samples having a sample life time greater than a threshold bandwidth

lifetime (page 6 paragraphs 3-4), by rejecting bandwidth samples having a retransmitted

packet (page 6 paragraphs 4-5), and by eliminating bandwidth samples having a

missing packet within each of said bursts (page 6 paragraphs 4-5).

40.   The combination of Sisalem and Derby taught the invention substantially as

claimed. However, the combination of Sisalem and Shaw did not expressly teach a

method further comprising the step of filtering for inaccurate bandwidth samples from

said computed bandwidth samples by rejecting bandwidth samples encountering an operating system (OS) delay of said client system.

41.   Sisalem suggested exploration of art and/or provided a reason to modify the method with a step of rejecting samples that might caused the estimation to be statistically unreliable (page 6 paragraphs 4-5)

42.   Berthaud disclosed a method of filtering samples from said computed bandwidth samples by rejecting bandwidth samples encountering an operating system (OS) delay of said client system [packets not conforming to the initially provided statistical reliable are discarded]. Clearly, packet samples encountering an OS delay are statistically unreliable and therefore would be discarded from the estimation (Abstract, Figure 1, column 3 lines 8-18, column 9 lines 3-34).

43.   It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the method of Sisalem with the teachings of Berthaud to include a step of rejecting samples that might caused the estimation to be statistically unreliable in order to filter out noise (Berthaud, Abstract) since in order to successfully control traffic access, it is necessary to accurately characterize the traffic so as to provide appropriate bandwidth for carry that traffic (Berthaud, column 3 lines 8-18).

44.   Regarding claims 4 and 17, Sisalem and Berthaud disclosed a method wherein the bandwidth samples encountering said OS delay is determined based on a quantity difference between an ideal burst duration prior to encountering said OS delay and an actual burst duration after encountering said OS delay (Sisalem, page 6, page 8 paragraph 4; Berthaud, Abstract, Figure 1, column 3 lines 8-18, column 9 lines 3-34).

45.   Regarding claims 7 and 19, Berthaud disclosed a method wherein said new bandwidth corresponds to a median value of said computed bandwidth samples for a low speed link (column 9 lines 5-34, column 13 line 45-column 14 line 18).

46.   Regarding claims 8 and 20, Berthaud disclosed a method wherein said new bandwidth corresponds to the statistical mode of said computed bandwidth samples for a high speed link (column 13 lines 46-column 14 lines 18).

47.   Regarding claims 25-26, the device for estimating a bottleneck bandwidth corresponds to the method of claims 3 and 5, and thus these claims are rejected using the same rationale.

48.   Since all the limitations of the claimed invention were disclosed by the combination of Sisalem, Derby, and Berthaud, claims 3-4, 7-8, 16-17, 19-20, and 25-26 are rejected.

Response to Arguments

49.   Applicant's arguments filed 06/30/2005 with respect to the pending claims have been considered but are moot in view of the new ground(s) of rejection.

50.   As the rejection reads, Examiner asserts that the combination of these teachings render the claimed invention obvious.

Conclusion

51.   The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Refer to the enclosed PTO-892 for details.

52.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tam (Jenny) Phan whose telephone number is (571) 272-3930. The examiner can normally be reached on M-F 9:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, David Wiley can be reached on (571) 272-3923. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or

proceeding should be directed to the receptionist whose telephone number is (703) 305-

3900.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

MARC D. THOMPSON
MARC THOMPSON
PRIMARY EXAMINER
571.272.3932

Tam T. Phan
July 21, 2005
tp